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ABSTRACT

The Quality School Portfolio (QSP) Initiative was a partnership among the Chicago Public Schools, Illinois, the Joyce Foundation, and the National Center for the Evaluation of Research, Standards, and Student Testing. The project infused data-informed, question-driven, and technology-rich processes into school improvement planning, teacher action research projects, feeder/received school relationships, and communication at eight Chicago public schools. This paper reports the successes, challenges, and recommendations of this initiative in building the culture and technical and organizational capacities of Chicago schools to carry out data-informed improvement. The discussion of the claim statements summarized in this report demonstrates that schools in the QSP Training Initiative use QSP and data-informed processes to help inform the school improvement initiatives that form the basis for the project. QSP schools were found to be poised to use the new QSP-Web product to advance data-informed school improvement. (Contains 5 tables and 13 references.) (Author/SLD)

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**Using Technology-rich Data Support Tools to Enhance School
Improvement Initiatives in Chicago Public Schools**

**Are the children learning?
How do we know?**

**AERA Meeting
Chicago, Illinois
4/21/03**

**Presenters
Derek Mitchell
Bill Conrad**

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Abstract

The Quality School Portfolio (QSP) Initiative was a partnership among the Chicago Public Schools (CPS), the Joyce Foundation, and the National Center for the Evaluation of Research, Standards, and Student Testing (CRESST). The project infused data-informed, question-driven, and technology-rich processes into school improvement planning, teacher action research projects, feeder/receiver school relationships, and communication at eight Chicago Public Schools. This paper reports the successes, challenges, and recommendations of this initiative in building the culture, and technical and organizational capacities of Chicago schools to carry out data-informed improvement.

Introduction

Helping schools effectively use data in support of strategic planning has become an important mission for many school districts, educational organizations and individual educators throughout the nation especially in light of the *No Child Left Behind* legislation. The American Association of School Administrators (AASA) and the National School Boards Foundation (NSBF) sponsored a research study conducted by the National Center for Research on Evaluation, Standards and Student Testing (CRESST), to study how districts use data support tools and data-informed questions to help answer key achievement-related questions. (Baker, in press). This study demonstrated that the task is extremely challenging and requires the active participation of leadership at all levels of the organization. Effectively infusing data informed district improvement into school districts also involves building and sustaining both the organizational and technical capacities of school districts.

Research associated with district and school action research studies supports the underlying assumption that schools can successfully address and inform key district questions if they can access and use the right data. The process of accessing and using data is a complex, energy intensive and difficult task. Researchers, led by Norm Webb from the Wisconsin Center for Educational Research (Mason, 2001), reported on the challenges that several Milwaukee public schools encountered in trying to build both technical and organizational capacities to use data in support of informing key strategic decisions (Mason, 2001). In her research with the Milwaukee public schools, Mason identified 6 challenges that school districts face in using data to support school improvement.

1. Cultivating the desire to transform data into knowledge;
2. Focusing on a process for planned data use;
3. Making a commitment to acquire data;
4. Organizing data management;
5. Developing analytical capacity; and
6. Strategically applying information and results.

Despite the difficulties cited in the research, the signing of the *No Child Left Behind*, made use of data a main focus for this country's schools (U.S. Department of Education, 2001). And unless districts are prepared to search through file cabinets and what are often thousands of CUM cards, database technologies will play an increasingly potent role. Technology tools are becoming more commonplace and even necessary for schools and teachers who want to use data-informed processes to inform improvement in student achievement. (Baker, E. L., & Herman, J. L. in press; Card, S. K., Moran, T., 1983; Mitchell, D. 2001). Technology plays a key role in helping school districts and schools look at and disaggregate data for determining student academic achievement at various levels within schools. Technology can support the collection, organization, and visualization of frequently collected classroom level assessment data. Research supports the effectiveness of technology in collecting student assessment data. Technology can support the collection, organization, and visualization of frequently collected classroom level assessment data. Research supports the effectiveness of technology in collecting

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student assessment data. Lee and Eller (2001) reported on the effectiveness of a data support tool called the Quality School Portfolio (QSP) in helping schools use a data-informed process to achieve their school improvement goals. Of course, implementation of this technology must also be routinely reviewed and evaluated to ensure maximum usage and benefits (Baker & Herman; In Press).

This article reports the efforts of 8 Chicago Schools and their feeder/receiver schools to use data-informed processes to address key questions related to school improvement, teacher action research, feeder/receiver school relationships, and communication. The names of the schools have been kept anonymous throughout this paper in order to maintain confidentiality. Building school-based technical and organizational systems for using data to support key school questions is truly a challenging task as the WCER team discovered and as was reported in AASA/NSBF/CRESST District Data Use study. This article describes how these 8 schools and their feeder/receiver schools addressed key questions using data and data support tools like QSP.

The Quality School Portfolio Initiative was a partnership among the Chicago Public Schools (CPS), the Joyce Foundation, and the National Center for Research on Evaluation, Standards, and Student Testing (CRESST). 8 schools formed the core CPS schools involved in the project. The project also worked with many of the feeder/receiver schools for these QSP schools.

Goals of the project included:

1. Support technology-rich, data-driven, decision-making in the following key areas:
 - a) School improvement,
 - b) Student academic achievement at the classroom level,
 - c) Feeder/receiver school relationships, and
 - d) Communication venues within and beyond schools.
2. Build the organizational and technical capacities of schools to plan, implement, and evaluate data-informed school improvement.

Similar data-informed initiatives were implemented in Los Angeles within the Stuart Foundation supported QSP Initiative. The American Association of School Administrators (AASA) and the National School Boards Foundation (NSBF) also sponsored projects supporting the use of technology-rich and data-informed improvement in schools across the nation. This article will discuss and compare themes and evidence found in all three projects. Norm Webb and Sarah Mason (1999) worked with schools in the Milwaukee school system to foster data-informed improvement. This team also sought to build the technical and organizational capacities of schools to use data to inform school improvement. They encountered similar successes and hurdles within their work. This article describes the successes and challenges of the Quality School Portfolio initiative in the Chicago Public School system.

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Background

In 1999, the Joyce Foundation awarded a 3-year grant in to the National Center for Research on Evaluation, Standards, and Student Testing (CRESST) to carry out the Quality School Portfolio Initiative with a small sample of Chicago Public Schools. Dr. Derek Mitchell, the director for the project worked with Dr. Gerry Oberman, the Director of the Department of Compliance for the Chicago Public School System, to identify schools to participate in the project. Schools were selected based upon their recognized use of data to support school improvement and their technological capacity to use QSP. They selected the following four schools as the first participants: School 2, School 6, School 8, and School 9.

The Quality School Portfolio (QSP) Initiative provided schools with the QSP data-support tool. This tool allows schools to collect, organize, and visualize ITBS data, ISAT data, and locally generated student achievement and demographic data for the purpose of school improvement, improvement of teaching and learning at the classroom level, improved feeder/receiver school partnerships, and improved communication.

This project provided intensive staff development support for the schools participating in the project. Teams of 3-6 key members from core QSP schools participated in eight 3-hour training sessions at the Medill Technology Center. Technical facilitators met weekly with the technology support team at each school. The school improvement facilitator met bi-weekly with the principal and other school improvement team members to plan how to use QSP in the context of school improvement initiatives. A teacher action research facilitator implemented data-informed teacher action research projects at the schools.

Online staff development opportunities were provided through the Collaboratory Project and E-Project. The QSP Training Initiative project provided support in helping schools use third party hardware and software to collect local assessment data. In addition to the QSP tool, schools received a variety of additional resources to help them. These resources included data parsing systems that allowed schools to prepare data for import into QSP as well as Access databases that allowed schools to collect and organize student behavior and other data within their schools. The project also planned, implemented, and evaluated four dinner meetings with school leadership teams in feeder/receiver school clusters to develop a data-informed and technology rich model for sharing student demographic and achievement data.

Additionally, the QSP Initiative in Chicago generated a variety of products that demonstrated evidence that schools addressed the project goals. Several samples of school based products that aligned with the goals of the project can be found in the following table.

Table 1
Project Goals and Sample School-based Results

Project Goal	Sample School-based Results
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Project Goal	Sample School-based Results
Support technology-rich, data-driven, decision-making in the following key areas: a) School improvement, b) Student academic achievement at the classroom level, c) Feeder/receiver school relationships, and d) Communication venues within and beyond schools.	▪ School 6 2002-03 SIPAAA plan that uses QSP reports to support the effectiveness of the Writing Intervention Project. ▪ 5-Week QSP Reading achievement reports for grades 2-8 that use local reading assessments to inform student achievement in reading at School 7 Elementary ▪ E-Project QSP Projects for the School 7 feeder/receiver school cluster ▪ Power Point presentation made to the LSC at School 4 that used QSP reports to document the success of a new reading program
Build the organizational and technical capacities of schools to plan, implement, and evaluate data-informed school improvement.	▪ Each school has a technical expert that can create school-based QSP projects, reports, and groups. ▪ E-project Web site schools can use to share QSP projects among feeder/receiver clusters. ▪ Data support team at School 7 can use external data collection systems and QSP to produce 5-week assessment reports in reading

Project Activities

Phase 1

The four schools that formed the core of the Quality School Portfolio Initiative worked with Dr. Mitchell to develop data teams. Data teams consisted of the school principal, technologist, and school improvement team members. These teams participated in a 3-day summer workshop at the Medill Technology Center in Chicago facilitated professional staff from CRESST. These workshops provided data teams with the rationale for using data-informed processes within their school improvement initiatives. The teams also learned how to use the various functions of QSP to produce reports and groups that supported their school improvement work.

In addition to the summer workshop, Dr. Mitchell visited each of the QSP schools on a quarterly basis to help the schools calibrate their use of QSP in the context of their school improvement processes. He also worked closely with the technology interns to make sure that their work continued to build the technical capacity of school teams to use QSP in the context of school improvement.

The schools received on-site technical support from a team of technology interns that were a part of a program called Managing Information System Technologies Program (MIST). Dr. Frank Nardine led this program as part of a cooperative effort between Governors State University and the University of Chicago. MIST interns were graduate students that had expert technical knowledge. They provided between 10-15 hours per week of technical support to the QSP Schools. They helped school staff in importing student demographic and academic achievement data into QSP. They also assisted data teams in learning how to use QSP to produce reports and groups in support

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of key school improvement questions. MIST technical interns regularly collaborated at monthly meetings and also through an interactive web site.

The interns began their technical support by helping the school technologists use parsing programs developed by a senior researcher at UCLA. Student demographic and large-scale assessment data (ITBS) could be downloaded from a centralized CPS computer called the SI-Mapper system. Data on this system was in 34 lines. Lines of data included demographic and Iowa Tests of Basic Skills (ITBS). The interns downloaded the lines of data to diskette. They worked with the school technologists to use the Excel parsers to organize the lines of data into comma-delimited files that could be imported into QSP. Much of the initial work of the interns focused on refining the parsers, helping the school teams use the parsers, and also importing student data into QSP.

The interns played an important role in helping schools import Illinois Standards Achievement Test (ISAT) data into QSP as well. The National Computing System (NCS) Company sent each of the schools a data disk with their school's ISAT data. The student data file existed in a delimited format that was very difficult for most schools to access and use. A senior researcher at CRESST developed an Excel parser that organized the data into rows and columns with appropriate headers. The MIST interns detected a problem with the parser in that it did not accurately represent the writing assessment data. One of the MIST interns redesigned the parser so that the narrative, expository, and persuasive writing assessment data was appropriately parsed into distinct rows and columns. Interns then imported the parsed ISAT data into QSP so that the schools could produce ISAT reports and groups within the context of their school improvement planning.

It was not uncommon for the interns to find that schools no longer had their ISAT data disks. If the plain label of the disk did not intimidate school staff, trying to open the student files with Excel would certainly intimidate all but the most intrepid data savvy school staff. Many of these disks ended up in the garbage. Our interns contacted NCS to obtain replacement disks and were told that it would cost the schools \$250 to replace each disk. Corporate gouging of local schools is certainly not an uncommon practice among companies that provide data to schools. We found that schools participating in the AASA/NSBF/CRESST District Data Use Project also experienced difficulty in securing large-scale assessment data in a format that could be imported into QSP.

At the end of phase 1 of the project, Dr. Mitchell developed a Request for Proposal for each of the schools. This RFP challenged the QSP Initiative schools to develop proposals that used QSP and data-informed processes to achieve specific school improvement goals. Each of the schools submitted proposals. Teams of professional staff from CRESST reviewed and approved the proposals. Schools received up to \$10,000 per school to implement their proposals in Phase II of the Project.

The plan was to ask schools in the Joyce Project to develop proposals for the use of data and support tools in alignment with Going Deep Model for data use. The

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school proposals focus the schools' use of data and data support tools in the context of projects that engage multiple levels of the organization. Table 2 summarizes the school proposals.

A unique component of this plan was the engagement of CRESST researchers in the evaluation and critique of the proposals. CRESST researchers developed a comprehensive critique of the school proposals that gave the data team the schools concrete suggestions for improving their projects.

Table 2
Summary of School Data-informed Projects

QSP School	Proposal Summary
School 9	Recovery/Prevention Program. This program sought funds to support an after school program to help tutor freshmen students who were at risk of failing the introductory Algebra course. Funds were used to pay for a teacher coordinator for the program. QSP was used to monitor student grades for freshmen students participating in the program.
School 2	Principal's Reading Club. This proposal sought funding for a Principal's Reading Club that promoted reading within the school. The principal led an after school program in which students who had volunteered for the program would read and critically discuss books selected by the principal. QSP was used to visualize and compare ITBS reading scores in a pre- and post fashion for the Principals Reading club participants and then the non-participants.
School 6	Data-informed SIPAA. This proposal sought funding to help members of the internal review team use QSP in the context of helping to answer key school improvement questions in a data-informed way. Some of the questions included: ▪ Are all students learning and being served? ▪ How do we as a school know that students are learning? ▪ Where are we as a school now? ▪ Where do we want to go? ▪ How will we get there?
School 8	Recovery Program. This program sought to use QSP to monitor the effectiveness of an Academic Recovery Program in helping students who had failed one or more courses at the school to improve their academic achievement. QSP was used to visualize grade data, ITBS data, and plan test data for students participating in the Recovery Program.

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Phase II Activities

In addition to the four core schools that participated in Phase I activities, four new schools were invited to participate in the second year of the Quality School Portfolio Initiative in Chicago. These schools were: School 1, School 4, School 7, and School 3. Many of the feeder/receiver schools of the core QSP schools also participated in Phase II activities. During Phase II, the original core QSP schools engaged in implementing their QSP Projects. The goals for the Phase II component of the project included:

1. Continue to build the technical and organizational capacities of QSP schools to use data informed processes in support of school improvement.
2. Develop and use a data-informed model to improve feeder/receiver school relationships.
3. Plan, implement, and evaluate data-informed teacher action research projects.
4. Improve the abilities of schools to use data to enhance communication with their communities.

In order to accomplish Phase II goals, the staff for the project was amplified. A project coordinator was hired at $\frac{1}{4}$ time to help coordinate Phase II of the Project. Two former MIST interns provided weekly technical support in helping to build the technical capacity of schools to use QSP. A key component of their work was the identification of a QSP technical coordinator within each of the QSP schools. A researcher from CRESST, worked with School 9 and School 6 schools to help these schools plan and implement data-informed teacher-action research projects. Dr. Mitchell continued his role as director of the project and visited schools on a quarterly basis. He played a key role in helping to facilitate four Feeder/Receiver dinner meetings throughout the year. These meetings resulted in a model that CPS schools could use to use QSP projects to share student demographic, event and academic achievement data.

QSP Spring Conference. The activities of Phase II began with a 2-day QSP Conference held at the Medill Technology Training Center in Chicago. The conference engaged data teams from the QSP schools in a session given by Peter Mich that helped participants understand the importance of using schools' use of data from the national perspective. NCREL contributed a presentation on the principles and pitfalls of using data in the context of school improvement.

Participants also attended sessions where they used school-specific scenarios to learn how the functions of QSP could be used to help inform school improvement questions. For example, School 7 received a scenario that asked them to analyze a data visualization of reading subtest performance for their eighth grade students. The scenario challenged them to go back to QSP to develop additional data visualizations that would help them better understand the reading performance of eighth-grade students. In a subsequent session, participants were provided an electronic format to develop their own data-informed scenarios and respond to scenario questions.

In addition to using and developing school-based data-informed scenarios, the QSP schools participated in sessions where they learned how to copy QSP tables into Excel for

more advanced data visualization and analysis. They learned how to copy QSP reports for pasting into SIPAAA documents. They also were introduced to a possible online progress report and how to use commercial optical scanning equipment to collect and electronically store local assessment data. The participants completed online evaluations for all of the sessions and for the conference as a whole.

Phase II activities provided intensive staff development support for the schools participating in the project. Teams of 3-5 school members from the schools participated in eight 3-hour training sessions at the Medill Technology Center in Chicago. Workshops focused on the mechanics of QSP as well as how QSP could be used within the context of school improvement. Technical facilitators met weekly with the technology support team at each school. The School Improvement facilitator met bi-weekly with the principal and other school improvement team members to plan strategically to integrate QSP reports into the school improvement process at each school. A teacher action researcher facilitated data-informed teacher action research projects at the schools. Online staff development opportunities were provided through the Collaboratory Project and E-Project.

Additionally, the work during Phase II helped schools use third party hardware and software to collect local assessment data. Schools used optical reading hardware and software from the commercial companies to score and electronically store local student assessment data.

Medill Workshops. Schools sent data teams to attend the eight QSP training sessions at the Medill Technology Center in Chicago. During these three-hour workshops, teams participated in a variety of hands-on activities where they worked with their own local school data and learned how to use the key functions of QSP. These functions included working in the database view, creating groups, building reports, and establishing goals. The second half of the sessions focused on using QSP in the context of school improvement, teacher action research projects, feeder/receiver relationships, and communication. School-based scenarios were used to engage teams in the school improvement components of the workshops.

The Medill workshops provided opportunities for school teams to share how they used QSP within their schools. School teams often collaborated in sharing the ways that they used QSP and other data support tools. For example, the School 1 team adapted the School 5 Behavior Access database to build their own system for collecting behavior data within their school. Many of the sessions concluded with online evaluations of the workshop. Sometimes the sessions ended with narrative evaluations. Results of the evaluations were used to enhance subsequent school visits and designing the next workshop at Medill.

The Medill workshops also provided hands-on opportunities to learn how to use the key functions of QSP. Part of this hands-on component engaged participants in using online tutorials. Data teams used the unique resources of the Collaboratory Web site (<http://collaboratory.nunet.net>). This Web site included a component called the

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MediaSpace that provided schools with a series of slides and explanations for using key functions of QSP. School teams learned how to use this resource at the Workshop and could then refer back to the MediaSpace slides when they returned to their school. In addition to the Collaboratory Project, school teams used a free Web site called E-Project to share documents, messages, tasks, and calendars. School 7 used this site to share a Receiver School QSP Project that they sent via E-Project to School 10 and School 11, the high schools in their area.

School-based Workshops. The Medill Workshops resulted in additional site-based workshops. The CRESST team implemented these workshops at individual schools throughout the year. For example, after a Medill QSP Workshop that focused on feeder/receiver school relationships, School 10 requested that our team carry out workshops for administrators at their school. Our team developed workshops for administrators and teachers at School 10 that engaged teams of teachers in the use of QSP in the context of teacher action research projects and feeder/receiver school initiatives. The workshops engaged teachers and administrators in school-specific scenarios where teachers and administrators worked with QSP-generated visualizations of large-scale assessment data to begin to investigate feeder/receiver school relationships.

Data teams at QSP schools also organized a series of mini-feeder school meetings among the core QSP schools and their feeder/receiver partners. These meetings sought to identify meaningful student demographic, event, and academic data that could be usefully shared among the feeder/receiver clusters. These meetings addressed logistical issues necessary to share student information among the feeder/receiver clusters. For example, the principal at School 7 set up several meetings with administrative staff from School 11 and School 10, their feeder high schools. At these meetings, staff from School 7 shared how they used an innovative system for collecting, organizing, and visualizing local reading assessment data. The team explained how they used an optical reading system, Excel software and QSP to produce 5-week reading assessment reports for use at grade-level teacher meetings. The team also made a presentation describing possible reports and groups that could be shared among the School 7 feeder/receiver cluster.

On-site support. The technical support team met weekly with the technology coordinators of each of the schools to help build the technical capacity of our schools to use QSP in support of the school's strategic goals. For example, the team worked with the reading coordinator at School 7 to help her design and use a system for collecting local reading assessment data. They trained her on the use of scanning software to read and electronically store individual student reading assessment scores. They also helped her develop a system for importing this data into QSP. They worked with her to create a variety of reports that she could produce to help inform the teachers and administrative staff at School 7 in how successful the teachers in grades 2-8 had been in improving student reading comprehension in 5-week intervals. A technology facilitator helped the math coordinator at School 1 build similar 5-week assessment systems for the 7th-8th-grade math program at School 1.

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The project coordinator provided bi-weekly assistance to school improvement teams and curriculum teams in helping these teams interpret QSP reports in support of improved academic achievement. For example, he recommended that the math team at School 9 used the Iowa Algebra Readiness Assessment to pre- and post-test freshmen students who had been assigned to the Double Algebra class period at School 9. This assessment provided sub-test scores that aligned with key pre-algebra skills. Teachers were able to use the results of the assessment to diagnose specific and group needs in Algebra. Teachers and administrative staff used the results of the Iowa Algebra Readiness Assessment as one measure to gauge the success of the program.

A researcher from CRESST met quarterly with teacher action research teams from School 6 and School 9 to help them design, implement, and evaluate teacher action research projects that used QSP. For example, she helped 5th grade teachers at School 6 develop QSP reports of student ISAT writing results to identify the need to address specific areas of weakness in narrative writing. She worked with the team to design best practice writing interventions; design and use writing rubrics that aligned with the state of Illinois writing standards and performance descriptors. She also helped the team to collect, organize, and visualize writing data using QSP.

QSP Initiative Feeder Task Force Meetings. Derek Mitchell designed four dinner meetings throughout the year for data teams from the core QSP schools and their feeder/receiver partner schools. The Feeder School Task Force meetings provided opportunities for schools and their feeder/receiver partners to meet to improve communication about the school improvement process. The meetings used a small group discussion process to focus on important questions mutually related to student achievement.

Questions for discussion included the following:

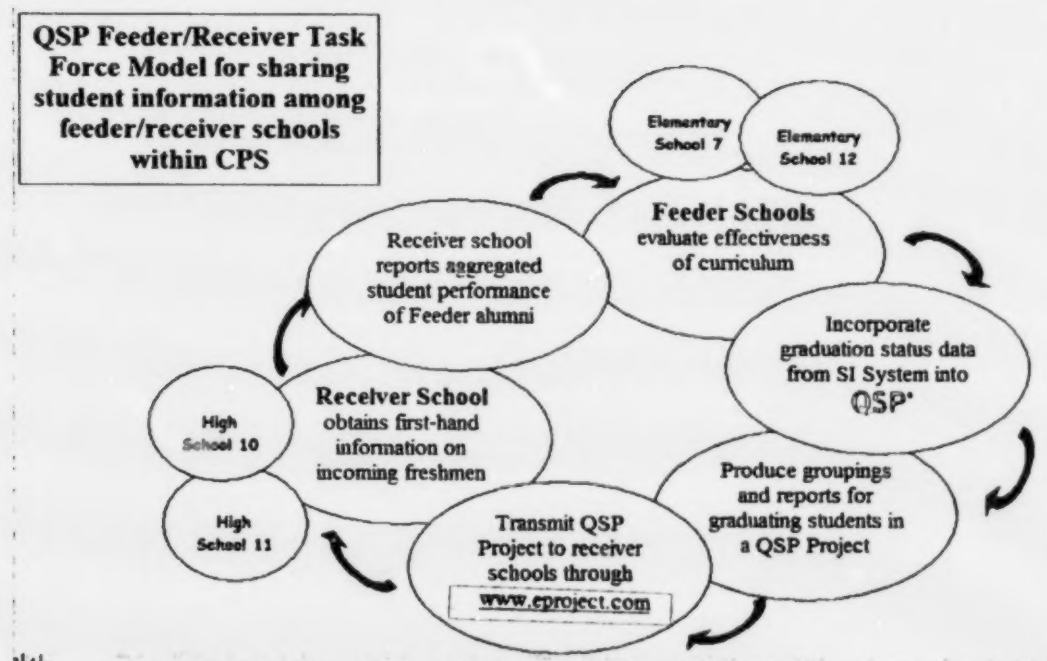
1. What student information would be most helpful?
2. How can technology tools like QSP assist us in making sure that we communicate student information in a timely and useful manner?
3. What structural changes within our organizations need to be made in order to facilitate the timely transfer of student information?
4. What student information from feeder schools is not currently available but would be helpful?
5. What formats and timelines are most helpful in sharing data among feeder schools?

Additionally, each meeting provided an opportunity to highlight the project work of one or more of the core QSP Initiative schools. Feedback from each of the meetings was summarized and shared with teams by the CRESST researcher. Mini-feeder meetings were held at each of the core QSP schools between the dinner meeting dates. The mini-feeder meetings provided an opportunity for individual feeder/receiver clusters to focus on local questions and issues that related to their cluster. The final QSP Task Force meeting in June resulted in a model for sharing student data within feeder/receiver clusters. This culminating meeting also provided the opportunity to share highlights of

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the work of QSP schools throughout the year. The feeder/receiver school model developed by the task force can be found in the figure that follows.

Figure 1
QSP Feeder/Receiver Task Force Model



Activities Summary

The Quality School Portfolio Initiative in Chicago engaged eight Chicago Public Schools and their feeder/receiver school partners in a variety of activities to support data-informed school improvement. These activities occurred in two phases over a 3-year period. During Phase I of the project four core QSP school data teams participated in a summer workshop where they learned how to use the data support tool called QSP. These schools also received support throughout the year from technology interns and quarterly visits from the Project director. School data teams developed Joyce-funded QSP projects where they planned to use data-informed activities to address specific school improvement needs within their schools.

During Phase II of the project, four additional schools participated. Schools focused on using QSP and data-informed process to address school improvement, engage

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in teacher-action research projects, build feeder/receiver school relationships, and improve communication. Activities for this phase included eight 3-hour staff development meetings at the Medill Technology Center, four feeder/receiver school dinners; onsite visits by two technology facilitators, school visits by a teacher action-research facilitator; school visits by a school improvement facilitator; and quarterly visits by the project director. Data team support also included online support through the Collaboratory project, E-project, and Go to My PC remote staff development technology.

QSP Initiative Evaluation

At the end of the second year of the study, the director of the project initiated an evaluation to study the effectiveness of the project in helping schools within the project use technology-rich and data informed processes to improve schools. This section describes the evaluation questions, claim statements, evidence collected and conclusions.

Evaluation Questions

The evaluation is designed to address two basic questions:

1. How can technology-rich, data-driven, decision-making support:
 - a) School improvement?
 - b) Student academic achievement at the classroom level?
 - c) Feeder/receiver school relationships?
 - d) Communication venues within schools?
2. How do schools build the technical and organizational capacities to systematically carry out data-informed school improvement from the perspectives of:
 - a) Staff development?
 - b) Technology hardware and software infusion and/or maintenance?

Evaluation Methodology

The methodology for the is evaluation uses a qualitative method of identifying claim statements that align with the key questions of the evaluation process and then using the processes of triangulation and confirming evidence to either support or not support the claim statements. The claim statements for this project follow.

Table 3
Evaluation Questions and Claim Statements

Evaluation Question	Claim Statement
How can technology-rich, data-driven, decision making support:	
School Improvement?	School improvement plans and activities demonstrate evidence of the use of data and information to inform key school questions.
Student academic achievement at the classroom level?	Teacher action research projects demonstrate the use of data to inform and answer questions related to student academic achievement.

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Evaluation Question	Claim Statement
Feeder/receiver school relationships?	School partnerships among feeder and receiver schools use data to inform and improve student academic achievement.
Communication within schools?	School teams use data and information in the context of communication with staff and community members
How do schools build the technical and organizational capacities to systematically carry out data-informed school improvement from the perspectives of:	
Staff development?	Schools use data and information to support staff development initiatives.
Technology hardware and software infusion?	Schools use technology hardware and software to enhance, innovate, or overcome misconceptions related to school improvement.

A method of triangulation was used to determine if the evidence supported the claim statements. The method of triangulation requires that data from multiple sources support the claim statement. (Miles & Huberman, 1984; Denzin & Lincoln, 1994). When three distinct sources of evidence supported a claim statement then that claim statement was officially supported by the work. The process of using multiple sources of data to support a claim statement improves the validity and reliability of interpretations made from those claim statements.

The evaluation also used a confirming evidence approach to determine the extent to which the claim statements were supported. Each claim statement was said to have been derived or met by confirming evidence, if and when multiple data measures supported it. Claim statements that produced conflicting or differing pieces of data measures were said to have produced *Mixed Evidence*, and were deemed inconclusive. *Disconfirming Evidence* was the term used when multiple data measures verified that claim statement had not been successfully supported (Rudy, 2001; 1999). The evaluation plan integrated triangulation with the confirming evidence approach as the basis of all evaluation activities.

The primary sources of data used to provide the confirming evidence include: School QSP Project; School SIPAAA Plans; Power Point Presentations developed and presented by school teams; Online evidence; and E-reports prepared by Project Coordinator and Technology Facilitators.

Table 4 describes the participants in the project and the data sources used by these participants for the data analysis.

Table 4

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Project Participants and Data Sources

Participant	QSP Project	SIPAAA Plan	Power Point Presentation	Online Evidence	E-Reports
School Principal	X	X	X	X	
School Project Coordinator	X	X	X	X	
School Technology Facilitator	X		X	X	
CRESST Project Coordinator			X		X
CRESST Technology Facilitator					X

Evidence from the project was organized into an evidence matrix that included the claim statements for the project and the specific confirming evidence that either confirmed, provided mixed evidence or disconfirmed the claim statement.

Materials and Procedures

Sources of evidence used within the triangulation and confirming evidence methodology previously described included School QSP Projects; Joyce-funded School Projects; School SIPAAA plans; power point presentations developed and presented by school teams; online evidence; and E-reports prepared by the project coordinator and/or technology facilitators.

School QSP Projects. Each of the schools participating in the project produced QSP projects that helped inform key school improvement questions. These QSP projects contained a variety of reports, groups, and data base components that provided evidence.

Joyce-funded School Projects. Four of the schools, School 2, School 6, School 8, and School 9 participated in applying for and implementing school-based projects where schools used Joyce funds to implement data-informed projects designed to address key school improvement questions. These projects resulted in artifacts and final reports that represent evidence.

School SIPAAA Plans. Each of the schools produced school improvement plans called the School Improvement Plan for Advancing Academic Achievement report or SIPAAA. These plans included embedded QSP reports and references. They also included addenda with QSP reports that supported the goals and activities of the plan.

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Power Point Presentations developed and presented by school teams. Many of the school teams produced power point presentations that included reports and groups produced by QSP. These presentations were made at staff development meetings, community academic achievement report meetings, and at the QSP Training and Task force meetings.

Online evidence. The CRESST team and school teams produced online artifacts and products that were found on the Collaboratory project and E-project web sites.

E-reports. Both the project coordinator and the technology facilitators produced regular reports that summarized and interpreted their work in the project. These accounts and insights represent evidence.

A matrix was used to organize the confirming evidence for the claim statements. For each claim statement, schools that produced evidence for that claim statement were recorded in the matrix. Schools that did not provide evidence for that claim statement were not included in the matrix. The matrix shown in Table 5 includes descriptions of the evidence as being confirming, mixed, or disconfirming.

Table 5
Evaluation Evidence and Interpretations

Claim Statement	School and Evidence Type	Evidence Description	Interpretation
School improvement plans and activities demonstrate evidence of the use of data and information to inform key school questions.	School 6 2002-2003 SIPAAA Plan	The plan includes QSP cross sectional and longitudinal reading, mathematics, and writing reports that support School 6's achievement of its school improvement goals.	Confirming Evidence
	School 4: 2002-2003 SIPAAA Plan	This report used the floating bar chart report function of QSP to demonstrate student performance on the ISAT.	
	School 6: Addenda to the 2001-2002 SIPAAA Plan.	This addenda includes a comprehensive set of cross sectional reports for ITBS and ISAT in reading, writing, and mathematics that was included with the 2001-2002 SIPAAA plan for School 6.	
	School 7: Addenda to the 2001-2002 SIPAAA Plan	This addenda includes a comprehensive set of cross sectional reports for ITBS in reading, writing, and mathematics that was included with the 2001-2002 SIPAAA plan for School 7. The report also includes interpretations of the reports.	
	School 7: 5-Week Reading Assessment Program	School 7 used QSP to produce groups and reports that helped to advance their school improvement goal of improving student reading achievement. Results of these efforts were reported in their SIPAAA.	
	School 2: Final Report for the Joyce Funded QSP Project. SIPAAA Plans	This is the final report for the Principal's Reading Club. This report was used to support achievement of reading goals in School 2's 2001-2002 SIPAAA plan.	

Claim Statement	School and Evidence Type	Evidence Description	Interpretation
School improvement plans and activities demonstrate evidence of the use of data and information to inform key school questions. (Continued)	School 6: Final Report for the Joyce Funded QSP Project.	This report represents the initial efforts of School 6 to use QSP and data informed processes in their school improvement initiative.	Confirming Evidence
	School 8: Final Report for the Joyce Funded QSP Project.	This report represents the initial efforts of School 8 to address the needs of students at academic risk of failing classes at School 8. It played a role in the 2001-2002 SIPAAA but not the 2002-2003 SIPAAA	
	School 9: Final Report for the Joyce Funded QSP Project.	This report represents the initial efforts of School 9 to address the needs of students at academic risk of failing introductory algebra classes at School 8. It played a role in the 2001-2002 SIPAAA and to some extent the 2002-2003 SIPAAA	
Teacher action research projects demonstrate the use of data to inform and answer questions related to student academic achievement.	School 6: 2 nd Grade Teacher Action Research Project	This was the first teacher action research project conducted in the project. A second grade teacher at School 6 conducted a study to determine how the amount of extra support time given to students at risk in reading improved reading achievement for these students.	Confirming Evidence
	School 6: 5 th Grade Narrative Writing Teacher Action Research Project.	This document shows how QSP reports were used to focus the narrative writing project at School 6. Debbie Hammersley from CRESST used this report to initiate the project at School 6.	

Claim Statement	School and Evidence Type	Evidence Description	Interpretation
	School 6: Data-informed Power Point Presentation to the 5 th grade Narrative writing team.	This Power Point presentation developed in partnership with CRESST and School 6 Narrative Writing Team used QSP reports to identify specific areas within narrative writing that could be improved at School 6 for 5 th grade students.	
Teacher action research projects demonstrate the use of data to inform and answer questions related to student academic achievement (Continued)	School 9: The Algebra 10X Project	This document produced by the QSP Project Coordinator at School 9 demonstrates how the data team at School 9 used QSP to monitor the success of the Algebra 10X Project at School 9.	Confirming Evidence
	School 9: QSP Report of freshmen performance on Iowa Algebra Readiness Test.	This QSP report shows the performance of freshmen on the Iowa Algebra Readiness Test. It reinforces the need for teachers to focus on helping students achieve key prerequisite pre-Algebra skills.	
School partnerships among feeder and receiver schools use data to inform and improve student academic achievement	QSP Task Force Initiative Dinner Meetings: Meeting plan.	Four dinner meetings were conducted throughout the year where QSP teams and their feeder/receiver partners met to develop a model for sharing student demographic, event, and academic achievement data.	Mixed Evidence
	Feeder/Receiver Model for Sharing Student Data	A model for sharing student data among feeder/receiver schools as a result of the four dinner meetings and mini-feeder meetings.	
	School 7/School 10 High School/School 11 High School QSP Project.	The School 7 team produced a QSP Project that provided 8 th grade student data for its high school receiver school. School 7 shared this project with its receiver high schools via E-Project.	

Claim Statement	School and Evidence Type	Evidence Description	Interpretation
School partnerships among feeder and receiver schools use data to inform and improve student academic achievement	Mini-Feeder Meetings: School 9 Mini-Feeder agenda	QSP core schools carried out mini-feeder meetings between the dinner meetings in order to plan local logistics for sharing student information among local feeder/receiver schools.	Mixed Evidence
	Mini Feeder Data Scenarios. School 9 data scenario.	QSP Schools developed school specific data scenarios that were used at the mini-feeder meetings to help feeder/receiver schools better understand how they could use data to support student achievement.	
	Mini-Feeder power point presentations. School 7 mini-feeder presentation.	QSP schools produced and shared power point presentations describing how they use data to support school improvement and how the expansion of the is process to feeder/receivers would be beneficial to all members of the feeder/receiver cluster.	
School teams use data and information in the context of communication with staff and community members	School 6: 2001 Annual Academic Achievement Report to the Community Power Point Presentation.	This is a Power Point Presentation made to the community that uses QSP data visualizations to report academic achievement to the community. In 2001.	Confirming Evidence
	School 6: 2002 Annual Academic Achievement Report to the Community Power Point Presentation.	This is a Power Point Presentation made to the community that uses QSP data visualizations to report academic achievement to the community. in 2002.	
	School Presentations at Task Force Meetings:	Four schools made presentations concerning how they used QSP to support school improvement at QSP Task Force Dinner Meetings held quarterly. School 6, School 9, School 7 and School 8 made presentations.	

Claim Statement	School and Evidence Type	Evidence Description	Interpretation
School teams use data and information in the context of communication with staff and community members (Continued)	School 7: Mini-Feeder Presentations	Many of the core QSP schools made presentations to their feeder/receiver partner schools. All of these presentations incorporated QSP reports to support data-informed collaboration.	Confirming Evidence
	QSP Project Sharing using E-Project.	QSP schools used E-Project to communicate among the feeder/receiver partners. For example School 7 shared an 8 th grade QSP Project with School 10.	
	School 10: QSP Workshops for teachers at Feeder/Receiver Partner Schools	The feeder/receiver meetings resulted in data-informed and QSP-report rich presentations made to staff from the schools that were partnering with the core QSP Schools.	
	School 4: Teacher Workshops at QSP Schools	School 4 initiated a school-wide energy project using QSP reports to identify a need for the project to help student's access and achieve specific math and language arts standards.	
	School 1: Online Communication.	School 1 received an award from Northwestern for its Poetry Slam Collaboratory Project. The School 1 team created MediaSpace on the Collaboratory Project that described their data-informed and standards-led project.	
Schools use data and information to support staff development initiatives.	8 Staff Development Meetings at the Medill Technology Center. Meeting syllabus example.	Data teams from the schools met 8 times during phase II of the project for 3-hour meetings learning how to use QSP in the context of school improvement.	Confirming Evidence

Claim Statement	School and Evidence Type	Evidence Description	Interpretation
Schools use data and information to support staff development initiatives.	4 QSP Task Force Meetings throughout the year.	During phase II, QSP schools and their feeder/receiver partners met to develop a model for establishing feeder/receiver relationships that used data to inform student achievement.	Confirming Evidence
	Weekly Technology Facilitator Meetings at the Schools. E-Report from a technology facilitator.	Technology facilitators from CRESST would meet weekly with the school-based technology facilitator to build the technical capacity of schools to use QSP.	
	Bi-Weekly School Improvement Meetings with the School Improvement team. E-report from the Project Coordinator.	The school improvement facilitator met bi-weekly with the school improvement team to support data-informed school improvement.	
	Online Staff Development Support using the Collaboratory Project. Media Space Presentations.	The CRESST team built an online system to help school teams use various importing, parsing, reporting and grouping functions of QSP.	
	School 6: The Teacher Action Research staff development meetings.	The Teacher Action Research Coordinator conducted numerous staff development meetings with teacher action research teams.	
	School 5: School-based QSP staff development opportunities.	Several of the QSP schools and their feeder/receiver partners received QSP staff development workshops for their teachers. For example, CRESST staff created a Behavior Access database for School 5 and then provided staff development for the teachers.	

Claim Statement	School and Evidence Type	Evidence Description	Interpretation
Schools use technology hardware and software to enhance, innovate, or overcome misconceptions related to school improvement.	School 6: School Improvement addenda.	Schools enhanced their school improvement process by creating data-informed and comprehensive addenda to their school improvement plan.	Confirming Evidence
	Schools 4 and 6: Embedded QSP reports in the SIPAA reports.	Schools like School 4 and School 6 embedded QSP reports into their SIPAAA plans to support data-informed school improvement.	
	Schools 1 and 7: Use of third party hardware and software to collect 5-week local assessment data.	Both School 7 and School 1 used 3 rd party hardware and software to innovatively collect local assessment data.	
	School 9: Use of third party hardware and software to collect pre and post Algebra readiness assessment data.	The administrative and math team at School 9 used Scantron hardware and software to collect student assessment data from the Iowa Algebra Readiness Exam to determine student needs and to monitor the success of the 10x Algebra program at School 9.	
	Schools 1 and 5: Access database solutions to specific school needs.	CRESST technology team members built Access databases to support schools in their quest to understand patterns in student behavior at School 1 and School 5.	
	School 6: Use of QSP to dispel effects of demographic groups on ISAT performance.	Longitudinal analysis of ISAT student achievement data at School 6 dispelled the misconception that special education students draw down overall student performance significantly.	

Discussion

This discussion interprets and elaborates upon the results aligned to the claim statements. The WCER report, the AASA/NSBF/CRESST District Data Use Project, and the Stuart report also interpret the work of schools to used data-informed processes to improve. Where appropriate this discussion highlights the work from these projects in the context of the claim statements for this project.

Claim Statement 1: School improvement plans and activities demonstrate evidence of the use of data and information to inform key school questions.

Evidence in support of Claim statement 1 confirms that schools within the project used data and information to support key school questions. The AASA/NSBF/CRESST District Data Use project found that school districts primarily focus on the use of student achievement data in support of district improvement. The districts use student achievement data to enhance traditional methods for school improvement, innovate school improvement processes, and overcome misconceptions about factors contributing or not contributing to school improvement. A similar pattern was found in this project. Schools in the project used data to support traditional school improvement processes. For example, School 6 used QSP reports to enhance the way that they visualized student academic achievement data through the production of a data-informed school improvement addendum. School 7 innovated the way that they used local, timelier data in the context of school improvement. School 2 used QSP reports to overcome misconceptions about the relationships among event data and student failure rates.

The District Data Use Project also found that school districts beginning to use student achievement data tend to focus initially on working with readily accessible large scale assessment data and then using data support tools like QSP to visualize that data broadly. The QSP Initiative in Chicago mirrored this finding in that schools initially collected readily available SI-Mapper data and then used QSP to create comprehensive reports, as in the case of School 7 and School 6, that became addenda to their school improvement plans. During phase II of the project, schools used data and data support tools in a deeper way to build school-based projects designed to address school improvement questions. School 9 used QSP and data informed processes to improve the math performance for freshmen students at academic risk of failing the Introductory Algebra Class.

While there is confirming evidence that the schools used QSP and data-informed processes to address key school improvement questions, these energy-intensive initiatives did not always appear in the SIPAAA plans for the schools. School 7, for example, expended a great deal of organizational energy in planning and implementing 5-Week Reading assessments to students in grades 2-8. Yet this initiative did not appear in its 2002-2003 SIPAAA. The culture of data-informed school improvement many times was different than official school improvement process. Schools like School 7 would complete the school improvement plan from a perspective of compliance rather than from the perspective of actual school improvement within the school. Schools like School 1 perceived their official SIPAAA as a showpiece and did not wish to share any possible

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negative results produced through their comprehensive production of academic achievement reports with QSP or their more focused local assessment activities.

A superintendent in New Hampshire reported the importance of the values of openness and transparency to data, a spirit of inquiry, and humility were keys to the successful use of data to inform district improvement. The QSP initiative schools demonstrated these values as it related to real-world local school improvement, but were less likely to do so in public accountability documents such as the SIPAAA. The enormous accountability pressures on Chicago Public School principals and school staff promoted more of a defensive posture as it related to official school improvement. Thus schools were less likely to share 'dirty laundry' publicly in official documents although much was going on within the schools in the use of data-informed school improvement.

As was reported in other QSP Projects, the technology facilitators played a key role in helping the schools effectively use data to support school improvement. The facilitators in this project helped to build the technical capacity of the schools to use data on their own by creating data download procedures, parsing tools, and just-in-time support for the use of QSP in the context of school improvement. During phase I of the project, schools became dependent upon the facilitators to carry out the technical aspects of the use of QSP. However, during phase II the project director and the technology facilitator worked with school teams to identify a school technology facilitator that could sustain the use of QSP within the school. Phase II training sessions between the CRESST technology facilitator and the school technology facilitator truly enhanced the technical capacity of the schools to use QSP.

Support from the project director and the teacher action research coordinator were also instrumental in helping schools use data in support of school improvement. The project coordinator worked with school improvement teams to help produce QSP reports in response to specific school-based questions. The project coordinator also suggested additional assessments and possible interventions to support school improvement. For example, the project coordinator suggested the use of the Iowa Algebra Readiness test as a pre- / post assessment tools to gauge the success of the Algebra 10X Project. The teacher action research coordinator played a similar role in helping to facilitate the school based and school improvement aligned teacher action research projects.

Claim Statement 2: Teacher action research projects demonstrate the use of data to inform and answer questions related to student academic achievement.

Evidence for the effectiveness of teacher action research projects demonstrating the use of data to inform questions related to student academic achievement is confirmed. Teacher action research teams at School 6 and School 9 successfully planned and implemented data-informed teacher action research projects. As in the District Data Use Project, these teacher action research projects catalyzed a process that allowed schools to use data in a deep way to support improvement in student academic achievement. These initiatives moved schools beyond the collection of readily available large-scale assessment data to the collection, organization, and visualization of local assessment data. School 6 staff worked with local narrative writing assessment data to support

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improvement in student narrative writing. The School 9 team collected and visualized Term Algebra grades to support the success of the 10x Algebra project.

Again the technology facilitators played a key role in helping the schools build and maintain the technical capacity to use QSP and third party hardware and software like the Scantron system to work with the local assessment data. Initially, they carried much of the burden for these tasks but they eventually helped train and support local technology facilitators in carrying out these tasks. The CRESST technology facilitator effectively trained the school librarian to provide the action research teams with the QSP reports and groups necessary to support the Algebra 10X project at School 9.

The teacher action research facilitator played a key role in helping School 6 and School 9 plan and implement the action research projects at their school. The teacher action research facilitator planned and facilitated meetings and staff development opportunities for administrative and teacher staff. She also assisted in the production and interpretation of the QSP reports that were made to help inform the project. The facilitation process did encounter difficulties though. As described in the vignettes, leadership at School 9 came from the principal that made it difficult to fully engage the teachers in the project. At School 6, data visualizations that resulted from the local narrative assessments and that continued to show room for improvement were not readily accepted by the school administration.

Claim Statement 3: School partnerships among feeder and receiver schools use data to inform and improve student academic achievement.

Evidence supporting the school partnerships among feeder and receiver schools in using data to inform and improve student academic achievement is mixed. The School 7/School 10/School 11 Cluster was the most successful in creating and sharing QSP Projects and reports to support student achievement. Again as in the District Data Use project, the role of school leadership played a key role. The principal of School 7 set up meetings with the receiver high schools to plan how the cluster would use QSP Projects to support the seamless transfer of 8th grade students from School 7 to the receiver high schools. The expertise and leadership of the school technology facilitator was also critical in establishing and maintaining this data informed partnership.

Other clusters like the School 9 also followed a pattern initiated by School 7 by setting up mini-feeder meetings with its feeder schools. However, there are over 80 feeder schools within the School 9 cluster. Feeder schools invited to the mini-feeder meetings at School 9 only sent 8-10 students to School 9. This phenomenon made it difficult to establish strong feeder/receiver partnerships at schools like School 9 and School 8 that had so many feeder school partners.

In addition, some of the QSP schools had difficulty in engaging their feeder/receiver partners. For example, School 4 could not engage its receiver high schools to participate in mini-feeder meetings. Other schools like School 2, were not able to find the time to engage their feeder schools in mini-feeder school meetings.

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Our QSP schools demonstrated that they could use the technical system for creating and sharing Feeder/Receiver School QSP Projects. This process involved the creation of school-specific projects and reports and then uploading these projects to the E-project web site. For example, School 7 uploaded its 8th grade student project to E-Project and both School 10 and School 11 could then download the projects to their computers for incoming freshmen data visualization and analysis. The QSP-Web project will make this upload and download process unnecessary as the Feeder/Receiver Clusters will have instant online connections to each other's projects.

Claim Statement 4: School teams use data and information in the context of communication with staff and community members

Evidence confirms the ability of school teams' ability to use data and information in the context of communication with staff and community members. Both School 6 and School 4 communicated student academic achievement using QSP reports embedded in school improvement plans. School 6 also used QSP reports in Academic Achievement presentations made to the community. Core QSP schools also presented their school-based QSP projects at Medill meetings and Task Force meetings. The reading coordinator at School 7 provided 5-Week Floating Bar charts and Histogram reports to teacher teams on a regular basis.

Maintaining the values of openness and transparency to data, a spirit of inquiry, and humility were evidenced in ways that schools communicated data and information to their stakeholders. For example, at school improvement meetings at School 6 school teams used longitudinal QSP reports to dispel misconceptions that special education students' performance on ISAT might pull down overall IAT scores for the school.

Yet communication of data and information was not always open and transparent. Again at School 6, there was reluctance on the part of the administration to share data that was not positive with the teacher action research team. The administration believed that the local narrative assessment data might demoralize teachers that were preparing students for the ISAT writing test. A compromise was forged between the Teacher Action Research facilitator and the administration to share the data and information in grade level meetings with teachers. School 1 was also reluctant to share negative performance data within their school improvement plan. Again the accountability pressures of CPS may account for the reluctance of schools to share negative performance data within the context of public documents.

Claim Statement 5: Schools use data and information to support staff development initiatives.

Evidence confirms that schools use data and information to support staff development. Schools shared progress on data-informed projects at regularly scheduled Medill Training sessions. School teams would then share these data-informed projects at their schools with staff. For example, School 4 made a presentation at a Medill Training session that highlighted the success of the Reading Program at School 4. This presentation was then used by the School 4 team at meetings with the Local School Council (LSC).

The CRESST team also helped to facilitate QSP presentations to teachers at School 7 and its Receiver High Schools. These presentations created awareness about how QSP could be used at the classroom level to support student achievement. These presentations did not go beyond creating an awareness though. The QSP-Web project will be a much more appropriate tool for teachers to use to help inform student achievement at the classroom level. The Stand Alone version of QSP is designed to be used as a school improvement tool for school administrators rather than a tool to inform teaching and learning at the classroom level. The problem of having to continuously update the stand-alone became an impediment for the QSP schools to use the stand-alone at the teacher level.

The teacher action research staff development initiatives used QSP and data-informed processes extensively. The Teacher Action Research Coordinator used QSP reports and groups as the rationale for carrying out the projects. QSP was used to collect, organize, and visualize local assessment and grade data that were collected during the implementation of the projects. These reports were shared with teachers as part of the staff development for the Teacher Action Research Projects.

The support of the technology facilitators and the project coordinators were instrumental in using data and QSP in the context of staff development. A key element of this support could be found in the development and use of school-based scenarios that engaged teacher and administrator teams in using question-driven and data-informed approaches to interpreting school specific problems. The facilitators used these scenarios with teachers and administrators at Medill Training Sessions and at training sessions held at the schools.

Data informed staff development also occurred through the use of the MediaSpace on the Collaboratory Project. Teachers and administrators could use this web site at the Medill Training sessions and back at the school to learn how to implement specific QSP functions. Teams did experience some difficulty in using this site at their schools sometimes because of the multiple steps required to access the online staff development support.

Claim Statement 6: Schools use technology hardware and software to enhance, innovate, or overcome misconceptions related to school improvement.

Evidence confirms the ability of schools to use technology hardware and software to enhance, innovate, or overcome misconceptions related to school improvement. As schools evolved from the use of readily available large-scale assessment data on the SI-Mapper system and the NCS ISAT data to enhance traditional data analysis activities, they began to innovate in ways to collect, organize and visualize local assessment data. This process entailed the use of third party technology hardware and software. School 7 for example, used Scantron hardware and software to collect and organize their 5-Week reading assessment data. School 1 used Chatsworth hardware and software to collect and organize 5-Week Mathematics Assessment data.

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The use of third party hardware and software was not without its difficulties though. Schools experienced problems in using technology-facilitator parsers to organize text data derived from the SI-Mapper system. The Excel parsers prepared the data for import into QSP. However, schools learned that they needed to do additional data scrubbing by removing commas and cells with no entries. These modifications were enough to inhibit the ability of school technology facilitators in some cases to be able to use QSP.

The parsing system used to prepare the NCS derived ISAT data was problematic for schools. The Universal Parser developed by CRESST was inadequate in its ability to parse the ISAT data. This parser did not adequately separate the Writing assessment data into the 18 separate variables for this assessment. The CRESST technology facilitators had to assist the school technology facilitators to hand parse the data into the appropriate rows and columns for import into QSP. The difficulties of data organization by third party companies were also experienced within the Stuart Project and the District Data Use Project. Data companies like NCS and Scantron make it extremely difficult to export and parse their data in ways that support data use within QSP. To the credit though of our school teams, they were able to develop systems to use 3rd party hardware and software in ways that supported their school improvement initiatives.

In addition to the third party hardware and software, the technology facilitators created data collection systems using the Access database program. These proprietary programs supported specific data collection needs that could not be met by QSP alone. For example, a technology facilitator created an Access database that allowed teachers to record student behavior data in alignment with the CPS Disciplinary Code. Teachers and counselors could use the database to create disciplinary reports. The data could also be exported and then imported into QSP in order to analyze behavior patterns within the school. Both School 5 School and School 1 used the Behavior Access Data Base. The technology facilitators also helped schools develop Excel templates to collect local assessment data like grades.

Discussion Summary

This discussion of the claim statements demonstrates that schools in the QSP Training Initiative use QSP and data-informed processes to help inform school improvement initiatives, teacher action research projects, feeder/receiver school relationships and communication with staff and community members. Working closely with CRESST staff, school teams overcome obstacles such as working with convoluted third party data sets and sharing projects using online sources such as the Collaboratory Project and E-Project. CRESST directors and facilitators play a key role in helping schools build the organizational and technical capacities to use QSP and other data support tools independently. Schools also demonstrate evidence that they use data and data-informed processes in staff development initiatives within their schools. The QSP schools are now poised to use the new QSP-Web product to advance data-informed school improvement.

Barriers to QSP Implementation

Barriers to the implementation of QSP manifested themselves in the values and cultures of the school organization, the technical capacity of the school, and the organizational capacity of the school. This section discusses barriers to the implementation of QSP from these three perspectives.

Values and Culture. Recognition of the values of openness and transparency to data, a spirit of inquiry, and humility was an important in the District Data Use Project. These values also manifested themselves in the QSP Training Initiative. However, when these values were not evident, difficulties arose in the implementation of QSP. Resistance by the administration of School 6 to share local narrative assessment data with teachers made it difficult to move forward in improving narrative writing at School 6. An unwillingness of teachers at School 8 to collect, visualize, and interpret student grade data made inquiry into the reasons for student failure rates at School 8 difficult. The principal at School 9 did not demonstrate humility in the use of data when he collected and used data student grade data in a punitive way with his teachers. Finally, the accountability culture at the schools mitigated the open and transparent use of data. For example, the school improvement team at School 1 was more concerned about finding very limited evidence of success in student achievement data rather than recognizing the big picture of the data in pointing to the great need to improve student achievement.

Technical capacity. The Stuart project found that some of the participants in their project lacked even basic technical skills. This barrier was also found in this project. Our technology facilitators spent a great deal of time training staff on basic keystroke maneuvers or in organizing Excel spreadsheets for import into QSP. Some of the school QSP team members were Macintosh-oriented and needed training in IBM platform skills. Some of the School QSP team members did not have e-mail addresses, which made it difficult to engage in communication.

The stand-alone nature of the QSP data support tool made it difficult for this tool to be used in a ubiquitous manner across the school. Some attempts were made in the project to provide teachers with the capability of using the tool. However, the need to individually update teacher machines with new QSP data became a barrier to the successful implementation of QSP at the classroom level. Even keeping administrative staff up to date on the latest QSP projects was difficult. This was especially true at School 7 and their QSP intervention project. As the intervention status of students changed, it became necessary to update 3-5 computers that contained the student intervention data. The stand-alone nature of QSP also made it difficult to sustain the feeder/receiver school relationships. While some schools demonstrated that they could use E-project to share QSP projects, the process required a great deal of effort on the part of school staff.

Schools also experienced significant barriers with the use of third party hardware and software. Companies like Scantron oversold schools on more hardware than they needed to perform the basic functions that they required. These companies also forced schools to give up on traditional functionality to migrate to an electronic system. For

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example, Scantron machines not longer adequately marked student answer sheets with the incorrect responses. Steps required to carry out the collection and organization of local assessment data were cumbersome. Finally, companies like National Computing Systems provided data files that required significant parsing to bring them into a format that could be imported into QSP. Companies designed their systems to create dependencies on their proprietary hardware and software instead of independence.

Organizational Capacity. As reported in the District Data Use Project, schools faced barriers in building the organizational capacity to use data support tools like QSP. Schools are very busy places. Allocating the human resource required to collect, organize, and visualize student data was a real challenge for schools. During phase I of the project, school staff depended too heavily on our technology facilitators to import student data and create reports. During phase II of the project, school staff did assign specific school staff to act as the school-based technology facilitators – usually the librarian of the school. This was a definite improvement in building the organizational capacities of the school. However, the attrition rate of these staff was also very high. For example, the technology facilitator spent a great deal of time training the librarian at School 8 to use QSP only to have this individual resign from the school.

Summary. Efforts to support schools in using data support tools like QSP and data informed processes were not without difficulty. Team members experienced barriers in school culture as evidenced by the tremendous need of schools to use data to demonstrate improvement. Barriers were also experienced in building technical capacity. Some school staff did not have even basic technical skills. Data companies provided hardware and software that was difficult to use. Schools experienced organizational barriers in terms of allocating staff to work with school data.

The Impact of QSP Use and Decision-Making in Schools

The use of QSP made an impact on decision-making within schools from the perspectives of school improvement, teacher action research, feeder/receiver school relationships, and communication. Schools in the project used data and information to focus their decision-making efforts on issues that could be measured. Measured failure rates in freshmen mathematics drove a decision-making process that resulted in the Algebra 10X project at School 9. Measured poor performance in reading at School 2 drove the Principal's Reading Club Project.

QSP also helped to engage schools in carrying out teacher action research projects. The school improvement team used ISAT data to demonstrate a drop in narrative writing performance at School 6. These QSP reports catalyzed the planning and implementation of teacher action research projects to improve student narrative writing performance at School 6. 5-Week Reading assessment QSP reports at School 7 continuously focused teacher attention on improving student reading performance at School 7.

The availability of 8th grade student achievement data by receiver high schools made it possible for the high school to make data-informed decisions concerning student

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placement and seamless academic support. The 8th grade QSP project developed by the team at School 7 provided data and information that School 10 and School 11 could use to support the placement of incoming freshmen.

The QSP schools were also able to improve the way that they shared the decision-making processes at their schools with school staff and the community. School 9 communicated the success of their decision to implement the Algebra 10x project with their Local School Council through the production of QSP-report rich power point presentations. School 6 kept its community informed of student academic progress through the planning and implementation of data-informed Academic Achievement Reports. Schools also communicated their data-informed decision-making processes through the integration of QSP reports into their school improvement plans.

Recommendations

Based upon the findings of the evaluation study and the challenges identified, this section identifies key recommendations aligned to the goals of the project.

Goal 1: Support technology-rich, data-driven, decision-making in the following key areas:

School improvement

Recommendation 1: Promote a school climate and culture that fosters as spirit of inquiry, openness and transparency to data, and humility.

Recommendation 2: Insure strong data-informed and question driven elements into the district/school improvement process.

Recommendation 3: Insure that at least one staff member can effectively use data support tools like QSP in support of school improvement.

Student academic achievement at the classroom level

Recommendation 1: Build and maintain the technical capacity to collect, organize and visualize large-scale and local assessment data in ways that support student achievement at all levels within the school.

Recommendation 2: Provide ubiquitous and easy access to student achievement, demographic, and event data for school administrators, teachers, and parents.

Feeder/receiver school relationships

Recommendation 1: Establish data-informed partnerships with feeder/receiver schools.

Recommendation 2: Use the model developed by the QSP Task force to share student data among the feeder/receiver schools.

Communication venues within and beyond schools

Recommendation 1: Plan and implement regular communication opportunities with key stakeholders to share products and results of data informed school initiatives.

Recommendation 2: Plan and implement both technology-rich and traditional opportunities to share data informed school improvement results.

Recommendation 3: Plan and implement a process for celebrating and rewarding the successful use of data to inform school improvement.

Goal 2: Build the organizational and technical capacities of schools to plan, implement, and evaluate data-informed school improvement.

Recommendation 1: Provide ongoing school-level staff development support for using data support tools, statistical tools, and teaching and learning opportunities to achieve specific school strategic goals.

Recommendation 2: Provide just-in-time staff development support for school-level teams engaged in school-level improvement projects.

Recommendation 3: Develop online opportunities to staff develop school staff in the use of data-informed processes for school improvement.

Next Steps

In 2001, CRESST received a \$2 Million grant from the Department of Education to develop an online data support tool that provided the unique features of the QSP stand-alone product and also provided expanded capabilities for use of the tool at multiple levels within school districts. QSP Web 4.0 collects, organizes, and visualizes student academic, demographic and event data at the classroom, school, and district levels. New features of QSP Web include an online grade book for teachers, electronic portfolio capability, extensive communication capabilities, and a parent reporting function.

The Chicago Public School System is uniquely positioned as a pioneering partner with CRESST and the Joyce Foundation to pilot QSP Web in Area 20. The QSP Web Project in Chicago will provide a great opportunity to build upon the successes of the Joyce-funded QSP Initiative. The Area Instructional Officer for Area 20, played a key role in effectively using the QSP stand-alone version in key school improvement and teacher action research projects when he was the principal of School 9. He was a successful leader in the Joyce QSP Training Initiative and he will be an excellent instructional leader for the proposed QSP Web Pilot in Area 20.

Conclusion

The vision of the Quality School Portfolio Training Initiative in Chicago was to provide local schools with the data support tools and processes to use data and information in support of student academic achievement. By fostering data informed school improvement, teacher action research projects, feeder/receiver school relationships, and data-rich communication, the project has helped eight schools and their feeder/receiver partners achieve the vision.

The QSP-Web Pilot in Chicago represents a natural extension of the QSP Training Initiative. It will bring the power of data-informed decision-making to a much wider audience including administrators, teachers, and parents. It will combine the power of quantitative data analysis with the qualitative collection and sharing of student work. QSP-Web is a tool that will truly support the improvement of student achievement in Chicago Public Schools.

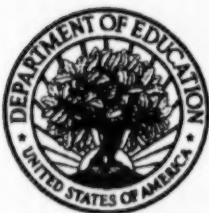
The success of the project can be summarized in the words of Victoria Bernhardt (1998),

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"Data provide the power to make good decisions, work intelligently, work effectively and efficiently, change things in better ways, know the impact of our hard work, help us prepare for the future, and know how to make our work benefit all children."

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